Pricing Sovereign Debt: Discretion v. Expropriation

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Abstract

The Greek restructuring of March 2012 illustrates how non-price contract terms can have a significant effect on the pricing of sovereign debt. In the Greek restructuring, bonds governed by local law suffered NPV haircuts in the range of 60-75%, whereas those bonds governed by foreign law were paid in full and on time. Other contract parameters such as the currency in which the debt is denominated and the exchange on which it is listed can also affect the leeway a sovereign debtor has in dealing with its creditors. In general, we find that sovereigns with strong institutions and investor protections are able to issue bonds under local parameters at relatively lower interest rates. In contrast, sovereigns with relatively weak investor protections have lower bond ratings and are forced to pay relatively higher interest rates on their debt. The important exceptions are those lower rated sovereigns who issue debt under foreign parameters. We believe that these sovereigns are able to obtain lower rates because by issuing bonds under foreign parameters, they reduce (eliminate) their ability to expropriate investors' wealth once the debt is issued.

February 23, 2016

* Duke Business School (Fuqua) and Duke Law School, Mexican Ministry of Finance and Duke Economics Department, and Duke Law School, respectively. Thanks to Lee Buchheit, Elisabeth de Fontenay, Anna Gelpern, Stephen Nelson, Ugo Panizza, Jesse Schreger, Mark Weidemaier and participants at the 2015 IGLP conference for comments. All errors are ours.

I. Introduction

In March 2012, Greece conducted one of the most brutal sovereign debt restructurings in history, forcing the majority of its creditors to take NPV haircuts in the range of 60-75%. Greece was able do this, without going into legal default, because it took advantage of the fact that over 90% of its outstanding bonds were governed by local Greek law. That fact allowed the Greek legislature to pass a law retroactively inserting certain provisions into those debt contracts that were governed by local law. Specifically, the provision (formally a "retrofit collective action clause") enabled Greece to induce the holders of domestic bonds to exchange their holdings for a new issue that reduced the face value of the debt and extended its maturity relative to the original issue. Given the fact that the bonds were written under local law, the creditors were in a relatively weak bargaining position. They did, however, make several demands regarding the terms of the new restructured bonds. Correctly anticipating that Greece would soon be in serious financial difficulties again, they demanded that the new bonds be governed by English law rather than local Greek law. At the time of the exchange Greece also had a small number of creditors who held bonds governed by a variety of foreign laws (English, Japanese and Swiss). The terms of these bonds could not, therefore, be altered by Greek legislative fiat. Greece tried to induce the holders of these bonds to voluntarily take the same haircut that it offered the holders of local law bonds. However, those bondholders who refused to participate in the exchange, so-called holdouts, were paid in full and on time (For details on the Greek exchange, *see* Zettelmeyer, Trebesch & Gulati 2013; Chamon, Trebesch & Schumacher 2014).

Greece was neither the first sovereign to have taken advantage of its control over local law to significantly reduce its financial obligations, nor, we suspect, will it be the last. In 1998 Russia imposed large haircuts on domestic law bonds in order to avoid a full-scale default. Untouched were its bonds governed by foreign law (Duffie, Pedersen & Singleton 2003; Gelpern 2015). And during the Great Depression of the 1930s, the U.S. government used its control over the governing law to engineer a transfer of resources from creditors to debtors by legislatively abrogating the gold clauses in all domestic debt contracts (Kroszner 1998).

While having its debt governed by local law gives a sovereign debtor enormous leeway in restructuring its debt in times of crisis, arguably, an even more powerful weapon is having the debt denominated in local currency. As an historical matter, there are a number of instances in which governments in financial crisis exploited the fact that their debt was denominated in domestic

currency and increased their money supply in order to inflate their way out of their debt obligations (Reinhart & Rogoff 2008; Reinhart & Rogoff 2011; Gelpern 2015).

Having the ability to unilaterally change the terms of its outstanding debt gives a sovereign great latitude in managing the execution of that debt, particularly if it is experiencing financial difficulties. However, one would expect that creditors would resist giving sovereign debtors the ability to manage or control the terms of their debt after it has been issued unless, of course, they are compensated ex ante for bearing the risk of expropriation by the sovereign.

We focus on three key contract terms that we believe could affect the interest rate demanded by investors, or equivalently, determine a sovereign's cost of capital. The three factors are (1) the exchange(s) on which the debt is traded; (2) the currency in which it is denominated; and (3) the governing law that controls any disputes between the sovereign and its investors. In addition, each of these factors can be implemented either at the local or foreign level. For example, Argentina could list its debt on the Luxemburg Exchange, denominate its bonds in Euros and have the issue governed by New York law. Alternatively, it could list its bonds on a local exchange, denominate the debt in its own currency and have the issue governed by local Argentine law. Finally it could employ a mixture of local and foreign parameters.[1]

As noted, the value to a sovereign debtor of having its debt governed by local law and denominated in local currency is immense in terms of the leeway its gives the sovereign to negotiate a crisis. In the literature on sovereign debt, the issuance of debt in a foreign currency is often referred to as "original sin" (Eichengreen, Hausmann & Panizza 2005). The idea is that countries that issue the bulk of their debt in foreign currencies, while perhaps able to borrow cheaply at issuance, suffer when a crisis hits because they are constrained in their ability to navigate the crisis.

As compared to governing law and currency, the listing decision has received relatively little attention in the sovereign context, perhaps because the focus in the literature is on what a sovereign does after a crisis hits. However, the amount of leeway that an exchange gives a sovereign can, in theory, be important when a potential crisis is brewing unbeknownst to the market. This is so because stock exchanges are the primary regulators in the sovereign debt market and dictate the periodic disclosures that debtors have to make to investors. A little leeway from the exchange in terms of what information the sovereign has to disclose and when it must be

[1] It should be noted that 78% of the bonds in our database are written with either all local or all foreign parameters.

disclosed could possibly help buy the sovereign time to take actions that might help to avoid a crisis or at least give the sovereign time to put in place measures that will diminish the impact of a crisis.

To summarize, a sovereign contemplating a bond issue must decide whether to (1) have the issue be governed by local or foreign law; (2) denominate the terms of the debt in its own or a foreign currency; and (3) list the issue on local or foreign exchanges. At first blush, one might presume that creditors would always prefer that sovereigns list their bonds on a foreign exchange, denominate their bonds in foreign currencies and have them governed under foreign law. After all, having the currency, exchange and governing law all being local gives the issuing sovereign a "home field" advantage in any disputes that might arise with its investors. This is particularly true if the sovereign experiences financial difficulties and threatens to default on its debt obligation. Conversely, one would expect that sovereigns would prefer to retain control over the issue by having their debt denominated in local currency, listed on a local exchange and governed by local law.

Of course investors will price these factors when considering buying a sovereign bond. Investors will price protect themselves and discount the price that they are willing to pay for a given issue by the expected ex post expropriation by the sovereign. Thus, in a sense, the sovereign pays ex ante for the expected expropriation that it might extract from bondholders after the debt is issued. Since the sovereign will pay ex ante for any expected ex post expropriation, sovereigns have an incentive to minimize these costs. One way to reduce the apprehension that investors would have is to have a third-party control the execution of the terms of a loan agreement. And perhaps the best way for a sovereign to assure investors that the terms of the debt will be honored is for the sovereign to write the debt contract in terms of a foreign currency (eliminating the possibility of inflating its way out of a financial crisis), list on a foreign exchange (subjecting itself to disclosure, reporting and listing standards imposed by a party outside of its control), and have the contract governed by foreign law (precluding the sovereign from rewriting the law to alter the provisions of its outstanding debt).

Thus, we expect that investors would pay less (require a higher interest rate) on debt issued under local parameters. The situation is analogous to the agency costs that arise in a public corporation because of the separation of ownership and control – stockholders own claims to the

firm's free cash flows but managers control the manner in which the cash flows are generated and distributed. In order to achieve a first-best solution, these two functions should be combined.[2]

In a similar vein, issuing sovereign debt, based on local parameters, creates a separation between ownership and control – bondholders own or are promised claims to the cash flows generated by the sovereign but the sovereign retains control over when and if these cash flows are distributed to bondholders. In contrast, issuing debt based on foreign parameters combines ownership and control – both reside with the bondholders. Relinquishing control over the repayment of interest and principal to the sovereign's bondholders enhances the value of the debt and reduces the sovereign's cost of capital.

In the sovereign debt literature, there have been several attempts to examine the choice of foreign versus local parameters, but that research so far has been limited to the study of single parameters, such as currency or law. In that sense, prior research has provided only a partial window into the bargain over control between sovereign debtors and their creditors. Creditors, for example, might charge the sovereign debtor a higher price for granting it control over two parameters rather than one; and this is particularly likely to be the case if the sovereign's ability to expropriate increases as a function of the number of parameters over which it has control. A sovereign may also want the option to decide on what mechanism to implement in order to reduce its debt obligations, since one method might be more effective than another as a function of circumstances.[3] We extend the prior research by expanding the analysis from one to three parameters.

In terms of prior research, particularly on governing law and currency, the results are roughly consistent with the theory articulated above. Multiple papers have found that local-law governed bonds tend to carry higher yields (lower prices) than their foreign counterparts, particularly during periods of financial crises (Nordvig 2015; Chamon, Schumacher & Trebesch 2015; Clare & Schmidlin 2014; Choi, Gulati & Posner 2011). The results regarding currency are more ambiguous. There is evidence that poorer nations in so-called emerging markets were largely unable to tap foreign credit markets with anything but foreign-currency denominated debt until about a decade and a half ago (Gadanecz, Miyajima & Shu 2014). In recent years however, a number of sovereigns in emerging markets have been able to issue large amounts of debt

[2] Jensen and Meckling (1976) and Fama and Jensen (1983). Of course this ignores the benefits of a public corporation.
[3] One difference between a default using inflation versus a Greek style legislative change is that the former typically does not trigger the default provisions on credit default swaps contracts, whereas the latter probably would.

denominated in domestic currency and purchased by both foreign and domestic investors. For the most part though, yields on domestic currency bonds are higher than those denominated in foreign currency bonds in the emerging market sector of the market (Gadanecz, Miyajima & Shu 2014; Du & Schreger 2015). Results are more ambiguous, however, when one examines the issuances by richer nations.

We are unaware of any examination of the impact of listing choices on sovereign yields. However, there is empirical evidence that suggests that the preceding theoretical argument applies to the listing of corporate equity issues. Most of this literature examines the effects of foreign firms listing their shares on U.S. exchanges. The general finding is that equity prices of a foreign corporation rise when it lists its stock in a jurisdiction with stronger disclosure and investor protection requirements such as the U.S. (Doidge, Karolyi & Stulz 2004). Subjecting the firm to the listing and reporting requirements of the SEC and U.S. exchanges reduces the ability of management to expropriate wealth from its stockholders (Karolyi 2006, Witmer 2006). The bottom line from the foregoing is that investors value the protection from managerial expropriation that foreign (as opposed to local) parameters gives them and they are willing to pay more for this protection.

Although minimizing the risk of expropriation is of paramount concern for investors, there are counteractive factors that they must consider when pricing sovereign debt.[4] If investors perceive that it is highly unlikely that the sovereign will default on its debt obligations, they may prefer that the sovereign retain control of the debt in order to give it the greatest latitude in dealing with financial difficulties should they arise. In the next section we discuss the tradeoff between discretion versus potential expropriation.

2. Discretion vs. Expropriation

Investors in sovereign debt always face some risk that the issuer will seek to extract value from them. After all, governments have enormous power both in terms of the ways in which they

[4] As an aside, there have been occasions on which domestic parameter bonds have fared better than foreign ones in restructurings (Gelpern 2015; Du & Schreger 2015). It is easy to see how this can happen under conditions where, for example, the local parameter bonds are all held by politically important domestic constituents (for example, local banks or people with close personal ties to the government), and the foreign bonds are all held by dispersed foreign investors with no domestic political power. The question, for our purposes though, is what one can predict ex ante – at the time bonds are issued. Ex ante, it is practically impossible for a sovereign's creditors to predict who will be holding the debt some day in the distant future should a restructuring become necessary. Indeed, the research on ownership of government bonds by important domestic institutions suggests that those who hold the debt at issuance can be quite different from those who hold the debt in times of financial difficulties (Gennaioli, Martin & Rossi 2014).

can extract value from investors (taxes, currency manipulation, threats of criminal sanctions) and in the difficulty that investors will typically have in seeking redress for government misbehavior (sovereign immunity rules, biases of local judges, reluctance of foreign governments to allow suits against other governments in their jurisdictions). Governments seeking to attract investors, therefore, face the problem of assuring investors that they will not utilize the power they have to extract value from those investors. Balancing the tradeoff between discretion and expropriation in writing sovereign debt contracts has long interested researchers. Research on this issue was pioneered by North and Weingast (1989) and pursued subsequently by others such as Stasavage (2002), Li & Resnick (2003) and Jensen (2008).

The literature cited above focuses on the effects of public and private institutions in reducing the likelihood of investor expropriation. In this article we take a different tack from much of this literature. Instead, we look at the question of how expropriation risk can be addressed contractually. Here, we build on Choi, Gulati and Posner (2012) (CGP), who document how, over the past half century, big changes in expropriation risk have correlated with significant changes in the contract terms demanded by investors. Most relevant for us, they document in detail how the weakest nations in the Euro area were able to shift from using detailed and highly constraining contract provisions to relatively loose and flexible contract provisions after they joined the European Monetary Union (which required subjecting themselves to the constraints imposed by a highly credible institution, the European Central Bank). CGP, however, leave a number of questions unanswered in their analysis, such as the question of the pricing impact of utilizing various contractual mechanisms to deal with expropriation risk. Nor do CGP examine how those contractual provisions impact the pricing of sovereign debt as a function of the strength of domestic institutions. This article attempts to fill those gaps in the literature.

Our analysis draws informally on the literature on incomplete contracting (e.g., Tirole 1999). An important reason why contracts are often left incomplete is that certain contingencies are either not observable or not verifiable in court, making it difficult to contract directly on such contingencies (Hart & Moore 1988; Hart 1995; Maskin 2001). Our interest is in one particular contingency: the prospect of a financial crisis that may lead to default. Sovereign defaults are extremely costly to all involved. Unemployment and inflation tend to rise, the ability to borrow and trade diminishes dramatically, and there tends to be general political instability (Borensztein & Panizza, 2008). At bottom, both creditors and debtors at the near-default point have an incentive

to avoid the default state. The problem though is that important decisions need to be made quickly during times of crisis if default is to be avoided. And creditors of a sovereign, because they often tend to be dispersed and large in number, are hard to coordinate quickly. In addition to the obvious problems of coordinating a large and dispersed group of investors (many uninformed), additional problems arise when there is a limited pool of resources that has to be divided. Subsets of creditors may try to lobby to have their portions of the debt stock exempted on the grounds that they are somehow especially important and others may threaten to hold out. Ideally, then, the ex-ante incentives of the creditor group will be to delegate decision making – including decision making regarding how much value, if any, to extract from creditors in a near-default scenario – to the debtor's representative (the expert government officials). The risk though is that those government officials will abuse that discretion to extract value from creditors and transfer them to other constituencies (for example, domestic voters who might reward such behavior by retaining the government officials).

The implication of the above is that dispersed creditors have both an incentive to grant discretion to domestic officials (the expert decision makers best able to tackle a crisis situation) and an incentive to constrain those same officials (because the officials might be tempted to use any discretion that they have to transfer value from creditors to local taxpayers/voters). The question is which government officials to grant discretion and which ones to constrain. The point can be made with a simple analogy. Consider an employee who is smart, knowledgeable and trustworthy. Granting such an employee discretion can be a value-enhancing proposition since she can use that discretion to make even better decisions than her superiors. However, if the employee is some combination of ignorance, inexperience and a proclivity for thievery, granting discretion can result in disaster -- funds get stolen or wasted. In short, employers would like to grant discretion; but only under those conditions where they have reason to expect that that discretion will be made to work for their benefit. The analogy to be made regarding sovereign debt is that creditors will grant discretion (that is, lend under local parameters) when they can trust the governments to make good decisions. And they will constrain the issuer (by requiring foreign-based parameters), when the sovereign cannot be trusted.

The foregoing is consistent with the literature on "credible commitments" that we alluded to at the start of this section. This literature suggests that there are ways <u>other than formal contracting</u> based on third-party control for a sovereign to assure creditors that it will make the

kinds of decisions that will ultimately benefit creditors. For example, the sovereign might over time build a strong enough reputation for honoring its obligations to debtholders such that the sovereign would not lightly risk losing the relatively low borrowing rates that a good reputation allows. Or the sovereign might invest in building strong domestic institutions such as an independent judiciary and an independent central bank that might constrain it from the temptation to expropriate wealth from private persons (North & Weingast 1989; Saiegh 2015).[5] In short, if the sovereign has enough internal controls to ensure that discretion over local parameters will be used wisely, then investors might not require a higher interest rate on bonds based on local parameters.[6] Indeed, to reiterate the point made above, if the sovereign is trustworthy due to its internal controls, investors may affirmatively want to give the sovereign latitude in resolving any problems that might arise regarding repayment of the debt. As long as there is a very low probability that the sovereign will default, it benefits both issuing sovereigns and investors if the debt is written in local terms so that the issuer can exploit its expertise in dealing with local conditions. Allowing the sovereign to retain management of their bonds gives the sovereign the ability to respond to a financial crisis with speed –- something that would be difficult to do if the sovereign had to negotiate permission from its dispersed bondholders every time it needed to make a key policy decision.[7] Finally, there are likely to be cost savings for both the issuer and investors from doing local issuances (no need for expensive foreign lawyers, bankers, auditors and so on).

Our results are consistent with the foregoing explanation. We find that it is primarily the high-quality sovereigns, as measured by S&P ratings and the World Bank's legal quality measures that issue bonds based on local factors. Conversely, we find that low-quality sovereigns do not enjoy this benefit; apparently the market is reluctant to buy their bonds if they are governed by local parameters. In other words, low-quality sovereigns must relinquish control of their debt in order to entice investors to buy their debt. Finally, we find that when lower-quality sovereigns

[5] The foundational article in this area, North and Weingast (1989), argued that 17th century England was able to become a dominant world power because it built strong domestic institutions to constrain the monarch's tendencies to expropriate, that in turn significantly enhanced the sovereign's ability to borrow. The claim has been challenged by scholars who argue that strong domestic institutions are not as important to sovereign borrowing as North and Weingast claimed (Stasavage 2003; Mauro, Sussman & Yafeh 2006). Empirical testing of the proposition, however, has proved difficult (Saiegh 2015).

[6] On the point that greater credibility in terms of monetary and fiscal policy can lead to increased ability to issue local currency sovereign bonds, see Jeanne (2003); Claessens, Klingebiel & Schmukler (2007); Miyajima, Mohanty & Chan (2014).

[7] This is sometimes referred to as the balance between flexibility and commitment (Eichengreen & Mody 2004; Mody 2004). Lenders, Eichengreen and Mody explain, affirmatively want to give rich (and credible) countries flexibility, but want to constrain the weak (and less credible) countries.

issue bonds written under local parameters, they do suffer a discount as compared to their foreign issuances.

The remainder of this paper is organized as follows. In the next Section we describe our data sources and provide an overview of our sample. In Section 4 we report the results of our initial aggregate analysis, where we find that bonds issued under foreign parameters carry higher yields than those under local parameters. In Section 5, we show how the results change once we introduce controls for the type of sovereign issuing the debt. Section 6 concludes.

3. Data Description

We draw our data from three separate sources: Thomson One Banker, Perfect Information, and DCM Analytics. These are the three major sources of data on sovereign bond contracts. From these sources, we extracted all of the bonds from the post-World War II period. The data from these sources are almost all from the period after 1985. For the prior issuances, we collected data on the bonds available from the archives housed at the Library of Congress, Guildhall, and the Harvard Business School Library. For each of the bonds, we coded our key contract variables (law, listing and currency).

Our data sources are all private vendors who sell data access to investors. This produces a bias in that investors tend to be more interested in contract information from weaker sovereigns (where the contract terms might actually be relevant). Indeed, the strongest sovereign issuers – the U.S., Japan, Germany, the Netherlands, and France – typically do not provide prospectuses or offering circulars with anywhere near the amount of detail that their weaker brethren produce.

Table 1 reports the sovereign issuers in our dataset for the period 1945 to 2015, along with the number of issuances by each sovereign. We also report the number of local parameters contained in the bonds that each sovereign issues. Our database consists of 17,349 bonds issued by 117 sovereigns. The data are sorted in ascending order by the percentage of bonds issued with all foreign parameters.

Table 1
Sovereigns by Contract Parameters

Country	All foreign	One local	Two local	All local	Total	% all foreign	% all local
Botswana	0	1	0	5	6	0.0%	83.3%
Chuvash	0	0	6	0	6	0.0%	0.0%
Dubai	0	4	0	0	4	0.0%	0.0%
Kabardino-Balkaria	0	0	1	0	1	0.0%	0.0%
Kalmykia	0	0	1	0	1	0.0%	0.0%
Karelia	0	0	14	0	14	0.0%	0.0%
Khakassia	0	0	8	0	8	0.0%	0.0%
Komi	0	0	6	0	6	0.0%	0.0%
Luxembourg	0	0	0	2	2	0.0%	100.0%
Malta	0	0	0	7	7	0.0%	100.0%
Mordovia	0	0	1	0	1	0.0%	0.0%
Netherlands	0	0	2	254	256	0.0%	99.2%
Sakha (Yakutia)	0	0	14	0	14	0.0%	0.0%
Singapore	0	0	0	70	70	0.0%	100.0%
Udmurtia	0	0	6	0	6	0.0%	0.0%
United Kingdom	0	2	15	694	711	0.0%	97.6%
United States of America	0	0	0	807	807	0.0%	100.0%
France	1	0	3	1175	1179	0.1%	99.7%
Germany	1	0	3	430	434	0.2%	99.1%
Spain	14	44	182	592	832	1.7%	71.2%
Czech Republic	10	8	16	326	360	2.8%	90.6%
Australia	20	30	2	588	640	3.1%	91.9%
Nigeria	3	1	0	86	90	3.3%	95.6%
Japan	31	6	893	0	930	3.3%	0.0%
Bulgaria	11	0	32	265	308	3.6%	86.0%
Austria	20	223	27	255	525	3.8%	48.6%
Hungary	44	10	1	905	960	4.6%	94.3%
Panama	2	40	0	0	42	4.8%	0.0%
Belgium	32	68	33	505	638	5.0%	79.2%
Slovenia	7	17	20	85	129	5.4%	65.9%
Poland	28	62	0	421	511	5.5%	82.4%
Sweden	52	274	5	577	908	5.7%	63.5%
Russia	37	3	593	0	633	5.8%	0.0%
Italy	71	125	795	183	1174	6.0%	15.6%
Romania	18	17	244	0	279	6.5%	0.0%
Latvia	8	6	102	0	116	6.9%	0.0%

Country	All foreign	One local	Two local	All local	Total	% all foreign	% all local
Denmark	28	203	12	153	396	7.1%	38.6%
China	29	0	1	348	378	7.7%	92.1%
Canada	6	32	13	6	57	10.5%	10.5%
Lithuania	38	14	301	0	353	10.8%	0.0%
Ukraine	34	4	235	7	280	12.1%	2.5%
Kazakhstan	10	0	71	0	81	12.3%	0.0%
Norway	27	20	0	147	194	13.9%	75.8%
Vietnam	2	1	0	7	10	20.0%	70.0%
Iceland	58	0	195	0	253	22.9%	0.0%
Belarus	6	1	0	19	26	23.1%	73.1%
Turkey	75	94	0	113	282	26.6%	40.1%
Indonesia	23	0	0	60	83	27.7%	72.3%
Cyprus	4	8	0	0	12	33.3%	0.0%
El Salvador	4	8	0	0	12	33.3%	0.0%
Thailand	33	4	55	0	92	35.9%	0.0%
Philippines	37	44	3	7	91	40.7%	7.7%
Malaysia	42	0	54	7	103	40.8%	6.8%
Slovakia	5	5	0	1	11	45.5%	9.1%
Ireland	113	4	18	101	236	47.9%	42.8%
Greece	33	24	2	9	68	48.5%	13.2%
Seychelles	3	3	0	0	6	50.0%	0.0%
Mexico	87	75	0	5	167	52.1%	3.0%
Croatia	40	1	19	16	76	52.6%	21.1%
Finland	213	9	3	173	398	53.5%	43.5%
Lebanon	60	34	0	0	94	63.8%	0.0%
Portugal	42	11	1	9	63	66.7%	14.3%
Argentina	123	48	4	3	178	69.1%	1.7%
Colombia	59	8	0	0	67	88.1%	0.0%
Brazil	112	8	1	0	121	92.6%	0.0%
Chile	14	1	0	0	15	93.3%	0.0%
Uruguay	59	4	0	0	63	93.7%	0.0%
Venezuela	73	0	4	0	77	94.8%	0.0%
New Zealand	92	0	5	0	97	94.8%	0.0%
Jamaica	32	1	0	0	33	97.0%	0.0%
Israel	34	1	0	0	35	97.1%	0.0%
Belgian Congo	1	0	0	0	1	100.0%	0.0%
Buryatia	1	0	0	0	1	100.0%	0.0%
Estonia	1	0	0	0	1	100.0%	0.0%
Fiji	1	0	0	0	1	100.0%	0.0%
Gabon	1	0	0	0	1	100.0%	0.0%

Country	All foreign	One local	Two local	All local	Total	% all foreign	% all local
Ghana	1	0	0	0	1	100.0%	0.0%
Honduras	1	0	0	0	1	100.0%	0.0%
Jordan	1	0	0	0	1	100.0%	0.0%
Mauritius	1	0	0	0	1	100.0%	0.0%
Mongolia	1	0	0	0	1	100.0%	0.0%
Oman	1	0	0	0	1	100.0%	0.0%
Abu Dhabi	2	0	0	0	2	100.0%	0.0%
Albania	2	0	0	0	2	100.0%	0.0%
Aruba	2	0	0	0	2	100.0%	0.0%
Bahamas	2	0	0	0	2	100.0%	0.0%
Bosnia and Herzegovin	2	0	0	0	2	100.0%	0.0%
Congo, Dem. Rep.	2	0	0	0	2	100.0%	0.0%
Georgia	2	0	0	0	2	100.0%	0.0%
Grenada	2	0	0	0	2	100.0%	0.0%
Iran	2	0	0	0	2	100.0%	0.0%
Ivory Coast	2	0	0	0	2	100.0%	0.0%
Macedonia, FYR	2	0	0	0	2	100.0%	0.0%
Mariy El	2	0	0	0	2	100.0%	0.0%
Moldova	2	0	0	0	2	100.0%	0.0%
Paraguay	2	0	0	0	2	100.0%	0.0%
Serbia	2	0	0	0	2	100.0%	0.0%
Sri Lanka	2	0	0	0	2	100.0%	0.0%
Cuba	3	0	0	0	3	100.0%	0.0%
Montenegro	3	0	0	0	3	100.0%	0.0%
Ecuador	4	0	0	0	4	100.0%	0.0%
Guatemala	4	0	0	0	4	100.0%	0.0%
Senegal	4	0	0	0	4	100.0%	0.0%
Belize	5	0	0	0	5	100.0%	0.0%
Dominican Republic	5	0	0	0	5	100.0%	0.0%
Egypt	5	0	0	0	5	100.0%	0.0%
Morocco	5	0	0	0	5	100.0%	0.0%
Barbados	7	0	0	0	7	100.0%	0.0%
Pakistan	7	0	0	0	7	100.0%	0.0%
Qatar	7	0	0	0	7	100.0%	0.0%
Trinidad and Tobago	8	0	0	0	8	100.0%	0.0%
Bahrain	9	0	0	0	9	100.0%	0.0%
Tunisie	9	0	0	0	9	100.0%	0.0%
Korea	11	0	0	0	11	100.0%	0.0%
Costa Rica	12	0	0	0	12	100.0%	0.0%
Peru	27	0	0	0	27	100.0%	0.0%

Country	All foreign	One local	Two local	All local	Total	% all foreign	% all local
South Africa	49	0	0	0	49	100.0%	0.0%
Total	**2,293**	**1,611**	**4,022**	**9,423**	**17,349**	**13.2%**	**54.3%**

The data in Table 1 report that 17 out of 117 (15%) of the sovereigns in our database issued only bonds under all local parameters. Moreover 28 out of 117 (24%) issued less than 5% under all foreign parameters. Not surprisingly this group includes the U.S., the U.K., France and Japan. The data also show that 46 (39%) of the sovereigns issued 100% of their debt under foreign parameters. And again, not surprisingly, this group is comprised of mostly smaller and poorer countries.

Figure 1 shows the general evolution of the sovereign bond market in the post-World War II period. The data show that the market was essentially nonexistent in the first four decades after the war.[8] The number of issues increased substantially around 1990 (as the Latin American debt crisis came to a close). Figure 1 reports the data by the foreign versus local dichotomy. The data show the number of observations in which all three of the parameters are local or foreign or some combination thereof. Note that in the initial years of the market, the preponderance of issuances were written under foreign parameters. As the market matured and grew in size, the fraction of bonds written under all local parameters grew.[9]

Figures 2 and 3, add detail to the foregoing by breaking the data down into investment grade and below investment grade issuers.[10] The graphs look remarkably similar, except that the market for below-investment grade bonds appears to have a ten-year lag on the market for investment grade bonds. In both though, we see that the initial years of the market are characterized by issuances primarily under foreign parameters, but as the market grew, more and more local parameter bonds were issued.

[8] For greater detail on this evolution, *see* Flandreau et al. 2011.
[9] One possible explanation for this growth is the growth in financial institutions and regulatory bodies instituted by small countries over this time period.
[10] Note that ratings agencies rate sovereigns and not individual bonds.

Figure 1. Sovereign Issuances, 1958 – 2015, Total Sample

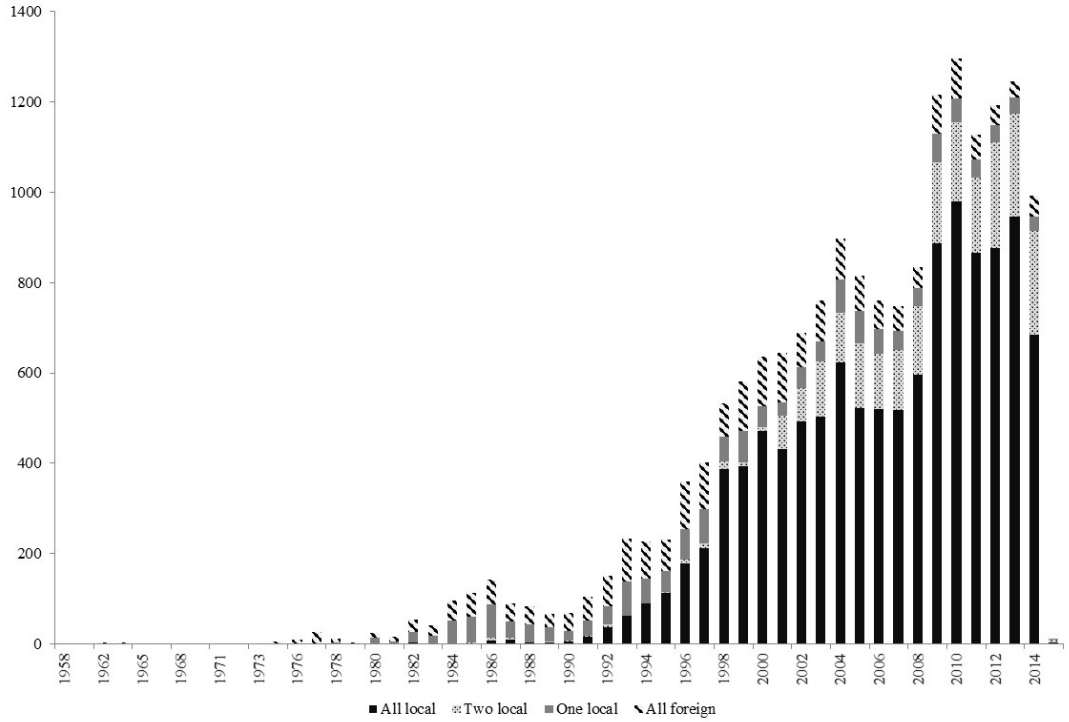


Figure 2 . Sovereign Issuances, 1960 – 2015, Investment Grade

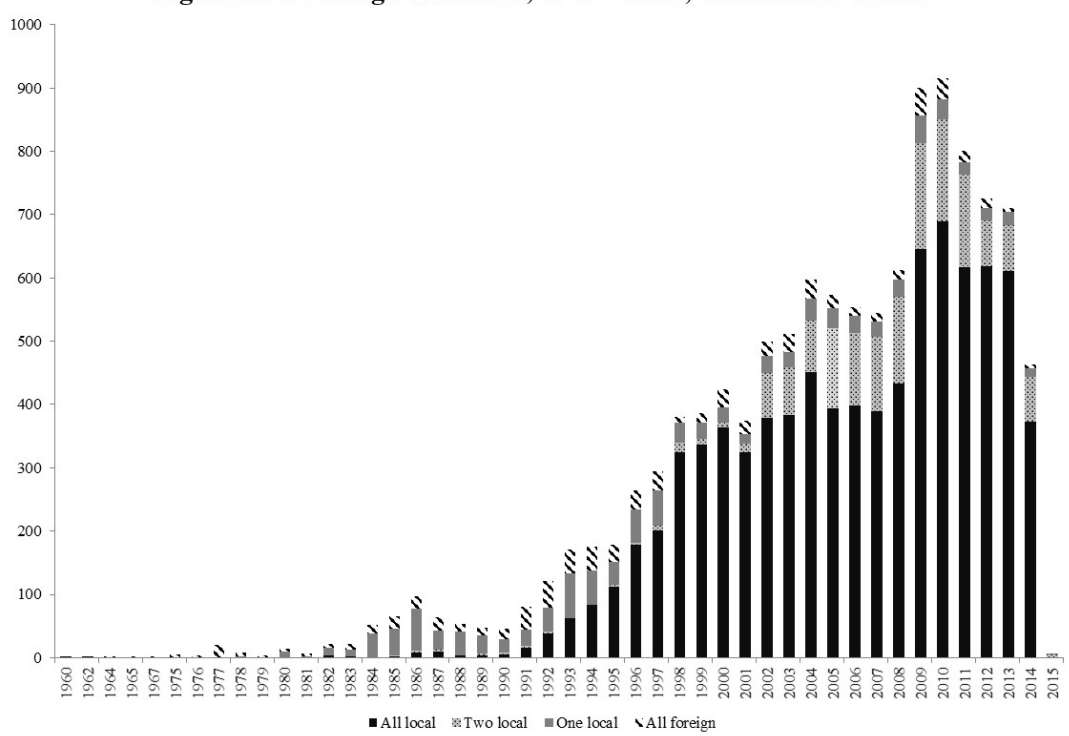
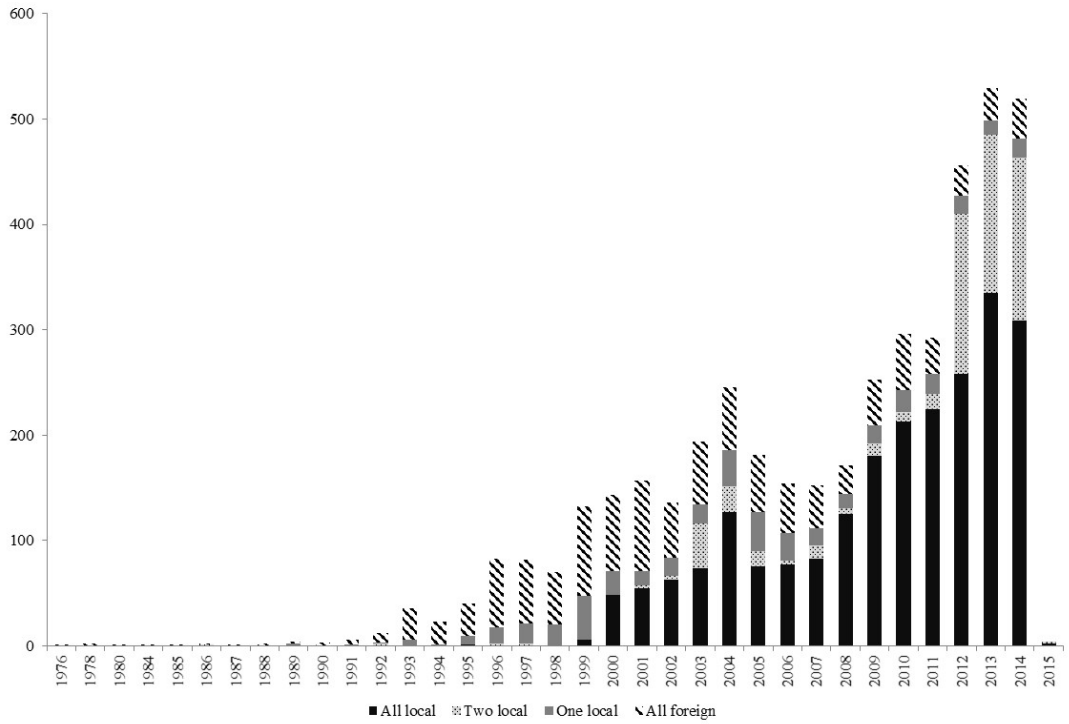


Figure 3. Sovereign Issuances, 1976 – 2015, Non-Investment Grade



4. Sample Breakdown by Bond Parameters

The four panels of Table 2 report our data according to our three parameters (currency, listing, and governing law) and by whether the parameters are local or foreign. As Panel A shows, we have a total of 17,572 bonds with complete data. The data in Panels A and B show that a majority of the bonds in the sample employ all local parameters (65%) and a significant percentage employ all foreign parameters (13%). Thus 78% of the bonds in the total sample are either exclusively foreign or exclusively local. The data also show that 85% of the observations are written under local law, which suggests the importance of this variable for issuing sovereigns.

Table 2
Sample Breakdown

A. Number	Local Law	Foreign Law	Total
Local Listing & Local Currency	11,460	78	11,538
Local Listing & Foreign Currency	111	97	208
Foreign Listing & Local Currency	2,034	204	2,238
Foreign Listing & Foreign Currency	1,297	2,291	3,588
Total	14,902	2,670	17,572

B. Percent of Total	Local Law	Foreign Law	Total
Local Listing & Local Currency	65.22%	0.44%	65.66%
Local Listing & Foreign Currency	0.63%	0.55%	1.18%
Foreign Listing & Local Currency	11.58%	1.16%	12.74%
Foreign Listing & Foreign Currency	7.38%	13.04%	20.42%
Total	84.81%	15.19%	100.00%

C. Values (Millions Current USD)	Local Law	Foreign Law	Total
Local Listing & Local Currency	32,743,252	22,268	32,765,520
Local Listing & Foreign Currency	81,746	112,081	193,828
Foreign Listing & Local Currency	16,779,852	189,194	16,969,046
Foreign Listing & Foreign Currency	668,283	1,844,625	2,512,908
Total	50,273,133	2,168,168	52,441,302

Table 2 Con't
Sample Breakdown

D. Percent of Total (Values)	Local Law	Foreign Law	Total
Local Listing & Local Currency	62.44%	0.04%	62.48%
Local Listing & Foreign Currency	0.16%	0.21%	0.37%
Foreign Listing & Local Currency	32.00%	0.36%	32.36%
Foreign Listing & Foreign Currency	1.27%	3.52%	4.79%
		0.00%	
Total	95.87%	4.13%	100.00%

E. Spreads	Local Law	Foreign Law	t-Statistics[1]
Local Listing & Local Currency	1.470	6.390	-10.63
	(2.840)	(4.080)	
Local Listing & Foreign Currency	1.420	3.404	-8.70
	(1.670)	(1.621)	
Foreign Listing & Local Currency	0.750	2.242	-7.26
	(4.650)	(2.530)	
Foreign Listing & Foreign Currency	0.890	1.770	-9.01
	(2.840)	(2.730)	
All Local - All Foreign			-4.62

[1]Local - Foreign

Table 2 Con't
Sample Breakdown

F. S & P Rating	Local Law	Foreign Law	t-Statistics[1]
Local Listing & Local Currency	AA-	A-	8.31
	15.230	11.670	
	(3.71)	(3.77)	
Local Listing & Foreign Currency	A-	BB-	12.56
	11.940	5.780	
	(3.96)	(3.10)	
Foreign Listing & Local Currency	A	A-	5.41
	12.960	11.480	
	(3.88)	(3.71)	
Foreign Listing & Foreign Currency	AA-	BBB+	27.83
	15.080	10.740	
	(4.28)	(4.82)	
All Local - All Foreign			42.10

[1]Local - Foreign

The bonds in the northwest cell of Panel A consist of bonds issued by two types of sovereigns: (1) those sovereigns that only issue bonds with all local parameters and (2) the bonds written under all local parameters by sovereigns that issue all three categories (all local, all foreign and combinations of local and foreign). Note that only the all-local parameter bonds issued by the second group are included in this category. The remainder of the bonds issued by these sovereigns are included in the other cells of the table. For example, the U.K. issues only bonds with all local parameters. Consequently, all of the U.K. bonds in our sample are included in the northwest cell of Panel A. The same can be said of bonds issued by the U.S., Germany and Japan. Conversely, the Ukraine issues all three types of bonds and only those Ukrainian bonds with all local parameters are included in this category. The remaining Ukrainian bonds are grouped in the other cells in the table according to the indicate parameters. Thus there are Ukrainian bonds in every cell in the table. In other words, the data in this table are categorized by bonds and not sovereigns.

Panel C of Table 2 reports the dollar value (in current U.S. dollars) of the bonds in the indicated cell. As is the case for the number of bonds, the value of the bonds written under all

local parameters dominate the sample (62%). However as shown in Panel D, the combination of foreign listing, local currency and local law is greater than the value of all foreign parameters. Thus, while the number of bonds written in all foreign parameters is significant (13%), the value of these bonds represent only 3.5% of the total sample.

Panel E of Table 2 reports the mean spread of the bonds in the indicated cell. Spreads are calculated as the yield on the indicated bond less the yield on a U.S. treasury bond with the same maturity. The U.S. treasury rate serves as a proxy for the risk free rate, for our purposes. Note that for every combination of parameters the spread on local law is significantly lower than the spreads on foreign law bonds. These results are contrary to the thesis we initially proposed. There we argued that because of the potential of expropriation, investors would demand a premium on bonds that are governed by local law. However, the data in Panel E suggests the opposite – when issued, local law bonds sell at a premium (lower yield) relative to foreign law bonds. Note also that this is the case for all categories in Panel E – foreign law bonds sell at a discount relative to local law bonds and the differences are all statistically significant.

In the introduction we discussed this possibility and offered an explanation. We asked whether it might be the case that only high-quality sovereigns would be able to issue bonds with all local parameters. Broadly speaking, this is what we find. The data in Panel F report the mean S&P rating for the bonds in the indicated cells.[11] Consistent with the data in Panel E, the mean rating for bonds with all local parameters is AA- whereas the mean rating for bonds with all foreign parameters is BB+. Moreover, consistent with the data in Panel E, the ratings shown in Panel F are higher for the bonds written under local law relative to those written under foreign law. As is generally the case, yields and ratings are inversely related. Finally note that the differences in the ratings are statistically significant for all categories.

The data in Table 2 indicate that sovereigns that issue debt under local parameters enjoy a lower cost of capital than do sovereigns that issue bonds under foreign parameters. This result is counterintuitive. As argued previously, issuing bonds under local parameters would engender an agency cost between the sovereign and its investors, since under local parameters sovereigns have

[11] The data in Panel F were calculated as follows. We assigned a numerical value from 1 to 18 reflecting the 18 S&P classifications from B- to AAA. We then calculated the mean numerical value for each cell and converted this value back into a letter value. The mean numerical value is reported under the average rating and the standard deviations of the numerical values are reported in parentheses.

the ability to alter the terms of the bonds after they have been issued. However here, we find just the opposite.

However, as discussed above there is a plausible explanation for this apparent anomalous result. Only high quality sovereigns are able to issue debt written under local parameters, and this is borne out by the fact that sovereigns that issue local parameter bonds have significantly higher S&P ratings, which is consistent with lower spreads. We conjecture that the institutional and reputational capital possessed by these high-quality sovereigns dominates any agency problems that might exist because they retained control of the debt they issued. Conversely, the weak issuers are constrained by the market into issuing, for the most part, foreign parameter bonds.

As noted earlier, the bonds in the northwest cells of the panels in Table 2 consist of two types of sovereigns – those that issue only bonds with local parameters and those who only occasionally issue all local parameter bonds. In the next section we employ a regression analysis to disentangle these two types of issuers.

Before proceeding there is an important caveat regarding the data in Panel E of Table 2. We make no adjustments to the rates regarding expected inflation at the time of issuance. From an economic perspective, what we want to compare are the real rates of interest for the various currencies. Thus, although the nominal rate on foreign-parameter bonds is higher than the nominal rate on domestic-parameter bonds, the real rates could be the same or even reversed due to different expectations regarding the future rates of inflation of the two currencies. To address this issue we employ two different corrections in our regression analysis: a fixed country effect and the use of a proxy for expected inflation rates.

5. Data Analysis

A. Total Sample

Table 3 presents the results of a regression analysis of the total sample on our relevant independent variables. We assume that S&P bond ratings reflect the creditworthiness of an issuing sovereign. Thus we would expect a negative relation between bond ratings and spreads as reflected in Panels E and F of Table 2. Moreover, since high-quality sovereigns generally issue local parameter bonds, we would expect a negative relation between the foreign-parameter bonds and spreads, due to the fact that low-quality sovereigns, for the most part, can only issue debt if they surrender control of the issue to investors.

The results reported in Table 3 show that the coefficients on the ratings variables are monotonic and all but one are statistically significant: bonds written by highly rated sovereigns have relatively lower spreads, whereas bonds issued by low-rated sovereigns have relatively high spreads. Also, the results indicate a negative and statistically significant relation between spreads and maturity. Note that the relation is between maturity and spreads. Thus, while the relation between maturity and rates should be positive for a given issuer, there is no reason to expect a positive relation between maturity and spreads.[12] Finally, consistent with the argument above, the coefficients on all four foreign parameters are negative and all but the coefficient on Listing are statistically significant when measure independently. Thus, holding quality and maturity constant, there is a negative relation between foreign parameter bonds and spreads. We interpret these relations as evidence that low quality sovereigns realize a reduction in the required rate of return on their debt if they relinquish their control over the three issuing parameters. Note that when all three parameters are included in the regression model, only the coefficient on Foreign Law is statistically significant. We attribute the lack of significance of the remaining two parameters to the multicollinearity among our three independent variables.

[12] In other words, while one would expect a positively sloping yield curve for any given currency over our sample period, the difference between the yield curves for any two currencies could either increase or decrease over the same period. Our results indicate that the differences are narrowing as the maturity increases.

Table 3

OLS results. Dependent variable is the Spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the sovereign level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-1.397***	-1.804***	-1.518***	-1.499***	-1.730***
AA	-1.237***	-1.322***	-1.122***	-1.216***	-1.320***
A	-0.740**	-0.812***	-0.699**	-0.759**	-0.809**
BB	1.152*	1.159*	1.462**	1.463**	1.430**
B	0.403	0.710	0.758	0.633	0.685
Maturity	-0.053***	-0.053***	0.054***	-0.055***	-0.055***
Foreign Law	-0.732**				-0.588*
Foreign Currency		-0.963**			-0.543
Foreign Listing			-0.344		0.174
All Foreign				0.779**	
Constant	2.333***	2.787***	5.509***	5.042	5.288
Observations	15,583	16,162	15,154	14,632	14,632
R^2	0.655	0.649	0.657	0.670	0.670

*** p < 0.01, ** p < 0.05, * p < 0.10

In Table 4 we expand the regression model reported in Table 3 by entertaining the six independent variables that the World Bank uses to assess the governance quality of the issuing sovereigns. These World Bank measures are among the most widely used measures of legal quality and, moreover, are regularly reported on by the weaker sovereign issuers in their prospectuses and offering circulars.[13] That said, commentators have pointed out some serious

[13] Although we did not do a systematic analysis of the use of these rankings, we found that almost every below-investment grade sovereign issuance under a foreign law done over the last two years (2014 and 2015) reported the the issuer's rankings on either the World Bank's indicators or the corruption index of Transparency International. On the fact that these are among the most commonly utilized measures, see, e.g., Rowher (2009).

measurement problems with these and other commonly used measures of governance or legal quality (e.g., Davis 2014; Kurtz & Schrank 2009). However, most relevant for our purposes is the fact that these are among the two most commonly reported measures by sovereign borrowers in their prospectuses, suggesting that investors care about them. The World Bank states that:

> *The six indicators all together are a measure of the quality of the governance in each country. The indicators are based on 31 underlying data sources reporting the perceptions of governance of a large number of survey respondents and expert assessments worldwide*.[14]

The World Bank describes each of these indicators as:

(i) **Voice and accountability** captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media;

(ii) **Political Stability and Absence of Violence/Terrorism** measures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism;

(iii) **Government effectiveness** captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies;

(iv) **Regulatory quality** captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development;

(v) **Rule of law** captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence;

(vi) **Control of Corruption** captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption.

[14] Details on the underlying data sources, the aggregation method, and the interpretation of the indicators, can be found in the WGI methodology paper, Kaufmann, Kraay & Mastruzzi (2010).

Table 4

OLS results. Dependent variable is the spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the country level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-1.175**	-1.600***	-1.273***	-1.267***	-1.541***
AA	-1.297***	-1.392***	-1.146***	-1.246***	-1.373***
A	-0.669*	-0.744**	-0.594*	-0.669*	-0.739**
BB	0.948	0.970	1.150*	1.159*	1.116
B	0.277	0.568	0.441	0.377	0.436
Maturity	-0.054***	-0.054***	-0.053***	-0.054***	-0.055***
Voice and accountability	0.285	-0.003	-0.117	0.04	-0.003
Political stability	-0.416	-0.34	-0.508	-0.492	-0.487
Government Effectiveness	-1.071**	-1.147**	-0.826*	-0.953**	-0.961**
Regulatory quality	-0.763	-0.638	-0.477	-0.49	-0.453
Rule of Law	0.969	0.889	0.518	0.678	0.686
Corruption	0.642	0.671	0.698	0.832	0.853
Foreign Law	-0.760**				-0.485
Foreign Currency		-1.028**			-0.636
Foreign Listing			-0.383		0.148
All Foreign				-0.771**	
Constant	7.841***	3.052***	2.364***	2.967***	3.234***
Observations	14,266	14,704	13,859	13,470	13,470
R^2	0.685	0.68	0.687	0.697	0.698

*** p < 0.01, ** p < 0.05, * p < 0.10

The first thing to note in Table 4 is that adding these governance variables reduces the significance of a number of the ratings coefficients. This implies that the World Bank variables contain information that is also reflected in the S&P ratings.[15] Note however the coefficients are almost all monotonic. The holdout rating is BBB, and the coefficients on all higher rated bonds are all positive and all those on all lower rated bonds are negative. The data show that Government Effectiveness is the only one of the six World Bank variables discussed earlier that is statistically significant. This result suggests that a high perception of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, decreases the interest rate that sovereigns have to pay on the debt it issues. Note also that all of the coefficients on foreign-parameters are negative and all but foreign listing are statistically different from zero. Note too that none of the foreign parameters are statistisically significant when all three are included in the model (column 5).

Finally in Table 5 we rerun our regressions substituting real interest rate spreads for the dependent variable, where real interest rates are defined as:

Real Rate = (1+Nominal Rate) / (1+Rate of Inflation) -1 and Real Spreads are calculated as the difference between the Real Rate of the issuing currency minus the Real Rate on U.S. Treasury bonds.[16] Our intent is to determine to what extent our results are being driven by expected inflation. To illustrate our concerns consider the following example:

Assume two countries with identical institutions, ratings, etc, but one has slightly higher rate of inflation than the other (think of the US and Switzerland). Also assume that the 10 year interest rate in the US is 5% and that inflation in the US is always 2% and in CHF always 1%. Further assume that everybody knows this (so CHF appreciates by 1% per year vis-à-vis USD) and that things never change. Then, the Swiss government can either issue in CHF at 4% or USD at 5%. Here, it looks as if borrowing in CHF is cheaper (in nominal terms), but the cost is really the same in real terms. We use the average annual realized inflation rate over the 5-years before issuance to proxy for the the expected rate of inflation. Although the other independent variables

[15] This is perhaps not surprising, since at least some of the rating agencies have suggested that they incorporate information on a sovereign's governance quality into their ratings. For example, Moody's upgrade of Georgia's rating in 2014 was reportedly based on Georgia's improved position on various rule of law measures. *See* Moody's (2014). But, as best we have been able to discern, none of the ratings agencies report how precisely they incorporate governance measures into their ratings.

[16] The expected rate of inflation for each country is approximated computing the average rate of inflation over the past 5 years before the date of the issuance of the bond. Therefore, we are simply assuming that the real rate approximates the expected costs of default.

change in sign and significance, three of our primary variables (foreign listing, foreign currency and foreign governing law) remain negative and significant when estimated separately.

Table 5

OLS results. Dependent variable is the real spread between the real interest rate of the bond and the real rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the country level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-4.662**	-5.828***	-5.047**	-4.697**	-5.237**
AA	-1.826**	-2.148**	-1.982**	-2.056**	-2.293**
A	-1.523*	-1.828**	-1.811*	-1.785*	-1.890*
BB	-6.712**	-6.036*	-6.596	-7.468*	-7.549*
B	-13.98**	-13.34**	-15.20**	-15.55**	-15.43**
Maturity	-0.030**	-0.030**	-0.031**	-0.032**	-0.033**
Voice and accountability	3.696	3.402	2.783	3.327	3.316
Political stability	1.874	2.071	1.719	1.689	1.703
Government effective	5.975**	6.100**	5.972**	5.667*	5.737*
Regulatory quality	-4.097	-3.709	-3.947	-4.028	-3.973
Rule of Law	-3.357	-3.496	-3.329	-3.298	-3.401
Corruption	3.874**	4.496**	4.446**	4.052**	4.038**
Foreign Law	-1.799**				-1.455
Foreign Currency		-1.887*			-1.402
Foreign Listing			-0.814		0.499
All Foreign				-2.158**	
Constant	-9.001	-7.810	-9.930	19.56**	19.61**
Observations	14,252	14,688	13,843	13,456	13,456
R^2	0.467	0.479	0.471	0.462	0.463

*** p < 0.01, ** p < 0.05, * p < 0.10

As discussed above, the total sample includes sovereigns that either issue all local bonds or all foreign bonds exclusively. Since these sovereigns have significantly different financial, governance and regulatory conditions, they contaminate the data. Put differently, there may be too many differences in these bonds to draw sharp conclusions. Consequently, we focus on those sovereigns in our sample that issue both local and foreign parameter based bonds.

B. Dual Issuers

We identify those instances in our sample in which a sovereign issued bonds under both foreign and local parameters with roughly comparable maturities. The advantage of focusing on sovereigns that issue bonds under both foreign and local parameters (dual issuers) is that it avoids the problem that plagues all cross-sectional analyses – the implicit assumption that "all else is equal." But all else is never equal. It is up to the researcher to identify and control for the innumerable differences that exist between observations. By focusing on each sovereign separately, we are holding almost everything else equal,[17] because the pair of bonds was issued by the same sovereign.

We report the results for all situations in which the sovereign issued a bond with all local parameters and a bond issued by that same country that has at least one of the three key parameters – law, listing and currency – as foreign. We also require that either the maturities of the two bonds be within a one-year period or the maturity on the bond with the higher yield be lower than that of the bond with the lower yield (so that, under the assumption of an upward sloping yield curve, the initial direction of the yield comparison would hold even if the maturity of the first bond were increased).

Overall, the majority of the bonds in the subsample (more than 75%) have maturities of five years or more. Note that sovereigns that issue exclusively either local or only foreign-parameter bonds are not in this sample. Table 5 gives a breakdown of this subsample.

[17] The size of the offerings art typically not the same. Universally the local issues are significantly greater than foreign issues. *See* Table 7 subsequently.

Table 6
Dual Issuer Breakdown

A. Number	Local Law	Foreign Law	Total
Local Listing & Local Currency	182	2	184
Local Listing & Foreign Currency	12	4	16
Foreign Listing & Local Currency	14	27	41
Foreign Listing & Foreign Currency	96	134	230
Total	304	167	471

B. Percent of Total	Local Law	Foreign Law	Total
Local Listing & Local Currency	38.64%	0.42%	39.07%
Local Listing & Foreign Currency	2.55%	0.85%	3.40%
Foreign Listing & Local Currency	2.97%	5.73%	8.70%
Foreign Listing & Foreign Currency	20.38%	28.45%	48.83%
Total	64.54%	35.46%	100.00%

C. Values (Millions Current USD)	Local Law	Foreign Law	Total
Local Listing & Local Currency	132,340	0	132,340
Local Listing & Foreign Currency	4,775	17,427	22,202
Foreign Listing & Local Currency	4,168	33,731	37,899
Foreign Listing & Foreign Currency	69,664	118,349	188,013
Total	210,947	169,507	380,454

Table 6 Con't
Dual Issuer Breakdown

D. Percent of Total (Values)	Local Law	Foreign Law	Total
Local Listing & Local Currency	34.78%	0.00%	34.78%
Local Listing & Foreign Currency	1.26%	4.58%	5.84%
Foreign Listing & Local Currency	1.10%	8.87%	9.96%
Foreign Listing & Foreign Currency	18.31%	31.11%	49.42%
Total	55.45%	44.55%	100.00%

E. Spreads	Local Law	Foreign Law	t-Statistics[1]
Local Listing & Local Currency	2.357	6.630	-23.48
	(2.440)	(0.028)	
Local Listing & Foreign Currency	2.218	-	-
	(1.710)	(1.621)	
Foreign Listing & Local Currency	6.941	1.947	2.83
	(6.385)	(2.295)	
Foreign Listing & Foreign Currency	1.648	1.465	0.61
	(2.248)	(2.194)	
All Local - All Foreign			3.40

[1]Local - Foreign

F. S & P Rating	Local Law	Foreign Law	t-Statistics[1]
Local Listing & Local Currency	A	BBB-	
	12.92	9.00	12.56
	(4.21)	(0.00)	
Local Listing & Foreign Currency	BB+	B-	
	8.09	3.00	6.92
	(2.55)	(0.00)	
Foreign Listing & Local Currency	BBB	BBB	
	10.29	10.26	0.01
	(5.86)	(2.90)	
Foreign Listing & Foreign Currency	A	BBB+	
	13.11	11.39	2.74
	(4.90)	(4.38)	
All Local - All Foreign			3.11

[1]Local - Foreign

Consistent with the results for the whole sample, the data in Panel A of Table 6 show that the majority of the observations are either all local or all foreign. Moreover, the majority of observations are written under local law, which is also consistent with the overall sample. However, Panel E of Table 6 shows that bonds written under all local parameters have higher spreads relative to those written under foreign law, even though the latter have significantly lower S&P ratings. This is in stark contrast to the results for the whole sample, and is consistent with the market rewarding low-rated sovereigns for issuing bonds based on foreign parameters.

In Tables 7 and 8 we separate this subsample into investment and non-investment grade sovereigns and compare the yields on these two subsets. To illustrate, the first entry in Table 7 is for Argentina. The data show that over our sample period, there were three instances in which Argentina issued both foreign and local bonds within our timing convention. The data show that in one of these instances, the yield on the local bond was greater than the yield on the foreign bond; and in the other two, the yields on the two bonds were the same.

Table 7 reports our results for non-investment grade sovereigns. The total number of dual issuances is 165 (132+23+10) and in 132 of these instances (80%), the yield on the foreign bond is less than the yield on the local bond. Apparently relinquishing control of their debt to foreign

investors and institutions results in a lower cost of capital for the issuing sovereign.[18] We find an almost opposite result in the subsample of investment grade sovereigns reported in Table 7.

We identify 102 instances of dual issuances by investment grade sovereigns. The data show that in only 49% of the instances was the foreign yield lower than the yield on the local bond. In other words, the market does not appear to reward high-quality sovereigns for issuing foreign bonds. Presumably these sovereigns are sufficiently trustworthy that relinquishing control to foreign investors has little effect on the yield at issuance.

[18] As an aside, it is worth noting that the issuers closest to the margin (strong sovereigns like Poland and Mexico that are close to moving up to investment grade) are the ones who have the most ambiguous data.

Table 7

Non-Investment Grade Bonds

Sovereign	Foreign < Local	Foreign > Local	Foreign = Local	Rating	%Foreign < Local
Argentina	1	0	2	BB-	33.33%
Brazil	0	0	2	BB	0.00%
Bulgaria	1	0	1	BBB	50.00%
Colombia	1	0	1	BB	50.00%
Croatia	12	2	0	BBB	85.71%
Greece	0	3	0	BBB-	0.00%
Hungary	26	0	0	BB+	100.00%
Iceland	6	0	0	BBB-	100.00%
Indonesia	2	0	1	BB-	66.67%
Latvia	5	1	0	BB+	83.33%
Lithuania	8	0	1	BBB	88.89%
Mexico	13	8	1	BBB	59.09%
Nigeria	3	0	0	BB-	100.00%
Peru	1	0	0	BB+	100.00%
Philippines	15	0	0	BB	100.00%
Poland	13	6	0	BBB+	68.42%
Romania	15	0	0	BB+	100.00%
Russia	3	0	0	BBB	100.00%
Seychelles	2	0	0	B	100.00%
Turkey	1	3	1	BB+	20.00%
Ukraine	14	0	0	B+	100.00%
Vietnam	1	0	0	BB	100.00%
TOTAL	**132**	**23**	**10**		**80.00%**

Table 8

Investment Grade Bonds

Sovereign	Foreign < Local	Foreign > Local	Foreign = Local	Rating	%Foreign < Local
Czech Republic	4	1	0	AA	80.00%
Australia	0	1	0	AAA	0.00%
Austria	2	6	0	AAA	25.00%
Belgium	17	4	1	AA+	77.27%
Denmark	1	5	3	AAA	11.11%
Finland	6	5	2	AAA	46.15%
Germany	0	1	0	AAA	0.00%
Ireland	1	0	0	A	100.00%
Italy	3	9	1	AA	23.08%
Japan	0	2	0	AAA	0.00%
Norway	4	1	0	AAA	80.00%
Slovakia	0	1	0	A	0.00%
Slovenia	2	1	0	AA	66.67%
Spain	3	4	1	AA	37.50%
Sweden	8	2	1	AAA	72.73%
UK	0	0	1	AAA	0.00%
TOTAL	**50**	**42**	**10**		**49.02%**

We identify 102 instances of dual issuances by investment grade sovereigns. The data show that in only 49% of the instances was the foreign yield lower than the yield on the local bond. In other words, the market does not appear to reward high-quality sovereigns for issuing foreign bonds. Presumably these sovereigns are sufficiently trustworthy that relinquishing control to foreign investors has little effect on the yield at issuance.

In order to quantify the above results we calculate the mean spreads for the local and foreign bonds for the non-investment grade and investment grade bonds. The results are reported in Table 9. The data show that for the below-investment grade bonds, the mean spread is significantly lower for foreign bonds relative to domestic bonds. This suggests that the market rewards low-quality sovereigns for issuing foreign parameter bonds. In other words, if low-quality sovereigns are willing to relinquish control of their debt to investors, they enjoy a lower cost of capital: 4.64% for local issues but only 2.58% for foreign issues. The t-Statistic for the difference is 6.44. This raises the question as to why low-quality sovereigns ever issue local debt. There are a couple of possible answers here. First, it is established wisdom in the development sphere that it is important for emerging market sovereigns to develop local bond markets so as to protect

themselves in times of crisis (the "original sin" problem) (Eichengreen & Haussman 1999; Inter-American Development Bank 2006). Relatedly, it also may be that countries that build strong domestic institutions have to go through some period of time where investors are skeptical about the institutions (and charge higher rates), before investors believe that these institutions really will protect against the risk of expropriation. Therefore, sovereigns may be willing to forgo a lower rate, ex ante, in the interest of obtaining benefits in the future. Second, weaker sovereigns may not always be able to tap the foreign markets, whereas domestic institutions may be more amenable to suasion by the sovereign.

Table 9
Mean Spreads

Non-Investment Grade Bonds

Local Bonds	Foreign Bonds	Difference	t-Statistic
4.64%	2.58%	2.07%	6.44

Investment Grade Bonds

Local Bonds	Foreign Bonds	Difference	t-Statistic
1.02%	0.41%	0.61%	2.95

The difference in the spreads for local and foreign bonds is significantly smaller for the high-quality sovereigns (0.61% versus 2.07%), although the difference is statistically significant (t-Statistic is 2.95). This result implies that even the high-quality sovereigns face a lower rate if they issue foreign bonds. However, as the data in Table 4-B show, they issue foreign debt less than 50% of the time. One possible explanation for this result is that high-quality sovereigns only issue foreign bonds when they can do so at an attractive rate, perhaps because of the specific parameters demanded by investors. Another possibility is that the high-quality sovereigns are induced (required) to issue local-parameter debt by local regulators. It may be the case, for example, that local financial institutions can only fulfill domestic capital requirements if they hold a certain amount of local-parameter government bonds. Finally, we note that the difference in the

non-investment sample is greater than difference in the investment grade sample (1.46% with a t-Statistic of 3.83).

In order to examine further the different effects of local versus foreign parameters, we perform our regression model on this subset of the data. Table 10 reports the results of this analysis.

Table 10

OLS results. Dependent variable is the Spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the sovereign level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-0.248	-1.408	-1.303**	-1.003*	-1.297**
AA	-0.696	-1.035	-1.036*	-1.045*	-1.063**
A	-0.727	-1.182*	-0.857***	-0.789**	-1.996***
BB	-0.246	0.297	1.464***	1.390***	1.430***
B	0.765	2.258	3.469***	2.7590**	3.361***
Maturity	-0.060***	-0.061**	0.087**	-0.078**	-0.074**
Foreign Law	-1.190***				-0.520*
Foreign Currency		-1.807***			-1.484**
Foreign Listing			-0.867***		0.482
All Foreign				-1.158***	
Constant	0.405	1.696	0.406	7.149***	7.244***
Observations	448	469	431	414	414
R^2	0.67	0.712	0.712	0.73	0.758

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Unlike the results based on the entire sample, ratings are only significant in models (3) through (5). In these three models all of the ratings coefficients are significant and almost monotonic. More importantly, the coefficients on all of the foreign parameters are negative and highly significant. Moreover, two of the three foreign parameters (Law and Currency) are

statistically significant when included in the regression model – see Column (5). The one foreign parameter that is not significant is the one that one would expect to be the least important of the three - exchange listing. As discussed earlier, Listing is the parameter that gives the sovereign the least amount of leeway in terms of being able to expropriate value from the creditors.

In Table 11 we expand the regression model reported in Table 10 by entertaining the six independent variables used by the World Bank to assess the governance quality of sovereigns.

Table 11

OLS results. Dependent variable is the Spread between the interest rate of the bond and the rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the country level.

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-0.591	-1.639*	-0.905	-0.958	-1.117*
AA	-1.193	-1.704*	-1.102	-1.099*	-1.125*
A	-0.233	-0.853	-0.318	-0.250	-0.541
BB	-0.245	0.311	1.582***	1.529***	1.513***
B	-0.595	1.206	2.669***	1.979	2.596**
Maturity	-0.050*	-0.053**	0.075**	-0.065**	-0.063**
Voice and accountability	-2.390	-1.816	0.195	-0.009	-0.390
Political stability	-0.354	0.293	0.037	-0.313	-0.11
Government effect	-3.371**	-3.167**	-1.127	-1.267	-1.061
Regulatory quality	-1.657	-1.800	-2.191*	-1.621	-1.697
Rule of Law	5.656**	5.370**	2.719*	2.495	2.552
Corruption	-0.246	-0.030	-1.265	-1.606	-1.125
Foreign Law	-1.131***				-0.525*
Foreign Currency		-1.807***			-1.434**
Foreign Listing			-0.674**		0.605
All Foreign				-1.112***	
Constant	-0.428	1.805	2.297	1.342	1.026
Observations	409	427	389	375	375
R^2	0.681	0.124	0.718	0.737	0.762

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

The first thing to note in Table 11 is that adding these governance variables reduces the significance of a number of the ratings coefficients. This implies that the World Bank variables contain information that is also reflected in the S&P ratings.[19] Note however the coefficients are almost all monotonic. The holdout rating is BBB, and the coefficients on all higher rated bonds are all positive and all those on all lower rated bonds are negative. The data show that Government Effectiveness reduces the interest rates sovereigns have to pay to issue their debt. Curiously, the Rule of Law is positively related to yield spreads. We are at a loss to explain this result.

The coefficients on all the foreign issue parameters (law, listing and currency) are negative and significant. In addition, two of the three are statistically significant when they are all included in the same regression – see column 5.

At the conclusion of section 2, we suggested that a possible explanation for the results in Table 2 might be a function of a selection bias: high-quality sovereigns are able to issue bonds based on local parameters at a relatively low cost, whereas low-quality sovereigns realize relatively lower rates only if they issue bonds based on foreign parameters. Presumably investors reward low-quality sovereigns who relinquish control over the bonds they issue. The results in both tables 6 and 7 are consistent with this conclusion.

As before we rerun our regression models with real spreads as the dependent variable. The results are reported in Table 12. The data show that the coefficients on our variables of interest (foreign listing, foreign currency and foreign law) are all negative and significant when estimated separately and governing law is significant and negative when all three are entered into the model. Moreover the results suggest that our results (conclusions) are not driven by differential expected rates of inflation.

[19] This is perhaps not surprising, since at least some of the rating agencies have suggested that they incorporate information on a sovereign's governance quality into their ratings. For example, Moody's upgrade of Georgia's rating in 2014 was reportedly based on Georgia's improved position on various rule of law measures. *See* Moody's (2014). But, as best we have been able to discern, none of the ratings agencies report how precisely they incorporate governance measures into their ratings.

Table 12

OLS results. Dependent variable is the spread between the real interest rate of the bond and the real rate on a U.S. Treasury bond with the same maturity. Ratings are taken from S&P with the pluses and minuses being combined with the lettered ratings. Maturity is stated in years. The model includes separate year and sovereign fixed effects. Robust standard errors are clustered at the country level. *** p < 0.01, ** p < 0.05, * p < 0.10

Variables	(1)	(2)	(3)	(4)	(5)
AAA	-3.656	-4.356	-4.452	-3.050	-4.303
AA	-0.813	-0.997	-0.883	0.034	-0.797
A	-2.374	-2.658	-0.318	-1.965	-2.405
BB	-0.889	0.491	0.491	0.764	0.633
B	0.372	1.220	2.826	3.542	3.468
Maturity	-0.0723	-0.0372	0.008	-0.051	-0.050
Voice and accountability	35.28**	35.01**	37.70**	39.17**	38.07**
Political stability	-0.060	-0.099	0.073	-0.053	0.386
Gov effectiveness	10.32	11.58	13.20*	12.60	12.22
Regulatory quality	-3.831	-3.817	-3.817	-3.536	-3.179
Rule of Law	-14.79	-15.24	-18.49	-18.28*	-18.35*
Corruption	12.78	12.78	12.78	11.55	12.03
Foreign Law	-2.054***				-1.567**
Foreign Currency		-1.848***			-2.60
Foreign Listing			--1.937**		-1.027
All Foreign				-1.339**	
Constant	-65.19*	-65.92*	52.39*	-52.61	-50.63
Observations	407	425	389	373	373
R^2	0.660	0.687	0.718	0.659	0.667

The results reported above suggest that for low-quality sovereigns, borrowing locally is consistently more expensive. However, we conjecture that low-quality sovereigns can only realize lower interest rates if they relinquish control of their issues and, in most instances, they are willing to incur the higher rate because the costs of relinquishing control are even higher. For the high-quality sovereigns, however, it is not so clear. Indeed, there it is often the case that borrowing foreign is just as expensive, or more expensive, than borrowing locally. And, if so, the question is why these countries ever issue foreign parameter bonds. One possible answer is provided by a recent study that reports on interviews with government debt managers (Gelpern & Gulati 2015). The debt managers in the study answer the question posed above by explaining that all but the highest quality countries (like the US and Germany) are concerned about the possibility of bad times and their internal debt markets drying up (as they did, for example, in 2008 in wake of the Lehman crisis). They, therefore, keep issuing at least small amounts under foreign parameters so that those investors who demand those parameters for their bonds (inevitably foreign investors) continue to provide capital and, in particular, can be tapped during a crisis.

Before concluding, we address some possible concerns regarding our results. First, if past realized inflation is significantly differenet from expected inflation then our results would be suspect. Second, there could be a correlation between the decision to borrow in local currency and the decision to govern the bond under local or foreign law that could be contaminating the results of the legal regime variable For instance, conditional on issuing in Euros, a sovereign would more than likely adopt a foreign governing law than if it issued debt in USD. However, we find that the correlation between foreign law and foreign currency in our sample is sufficiently low (0.51); thus, the decision to borrow in local currency and the decision to govern the bond under local or foreign law are not strongly related; in other words, there is no evidence of multicolinearity between these two variables that could be contaminating our results.

Third, there is the possibility that the yields (particularly local yields) for some countries are unduly low because of financial repression. That is, the government both forcing its local financial institutions to buy its bonds and mandating particular (low) yields, as opposed to allowing market forces to set them. There are a couple of responses to this concern. First, the data we use for our dual issuance analysis is almost all from a period of time where repression was relatively minimal. Specifically, Reinhart & Sbrancia (2015) identify the period of most intense financial repression as being prior to 1980. Roughly 95% of the bonds in the dual issuance subsample were

issued after January 1, 1990 (and the remainder are from the period between 1980 and 1990). Further, given the direction in which repression typically works (local yields are pushed down artificially to subsidize government borrowing) our results would likely be even stronger if the true local rates were utilized.

5. Conclusion

The Greek sovereign debt restructuring of 2012, in which the holders of bonds governed by foreign law largely escaped the restructuring and the holders of bonds under local Greek law got NPV haircuts of 60-75%, is an illustration of how investors who hold bonds governed by foreign parameters are better protected from expropriation during times of crisis than investors who hold bonds under local parameters. And this should be the case regardless of whether we are talking about a rich western industrialized nation or a poorer eastern developing nation. Comparing across countries then, we should see that bonds under local parameters carry higher spreads than those under foreign parameters.

What the data show, however, is that local bonds overall carry lower spreads than foreign ones. Drilling down in the data, we see that this is because there is a dichotomy in the market. The richest sovereign issuers issue debt almost exclusively under local parameters and the weakest sovereigns issue debt primarily under foreign parameters. Given that the richer issuers are also the bigger issuers, it makes sense that local parameter bonds have lower spreads than foreign parameter bonds overall. Once one controls for the financial strength of the issuers though, the results flip and we see that the foreign parameters correlate with lower spreads. But that still does not explain why the rich issuers are not issuing under foreign parameters; after all, the foreign parameter bonds should still carry less risk than the local ones. One answer comes from the literatures on credible commitments pioneered by North and Weingast (1989) and on the separation of ownership and control pioneered by Jensen and Meckling (1976) and Fama and Jensen (1983).

The story is that bond investors, under conditions where the sovereign issuer can credibly commit not to expropriate value from them, may prefer to lend to a country that issues exclusively (or nearly so) under local parameters. The reason is that investors, assuming they can constrain expropriation and can be assured that the government officials at hand tend to make high quality decisions, would prefer to leave discretion in the hands of government officials (that is, bonds

under local parameters). In particular, knowledgeable government officials with the discretion afforded to them by a debt stock largely governed by local parameters, are going to be in a better position to tackle financial crises than inexpert and dispersed bondholders.[20]

In conclusion, we believe our starting premise that investors who hold foreign parameter bonds are, other things equal, better protected from expropriation by the sovereign, holds. But it is also the case that there may be other, and perhaps cheaper, ways to commit to not expropriate that investors prefer – and those are by building strong domestic institutions.

We believe that we have added to the existing literature by expanding the range of parameters on the local v. foreign parameter front. Yet, there are ways in which this research might be expanded yet further. In particular, future research might benefit from parsing the local v. foreign parameter more finely, particularly if the laws vary considerably. All local laws, after all, are not the same. German local law, for example, might be far less likely to allow government expropriation of value from bondholders than, for example, Greek local law (Carletti et al., 2015). The same argument can be made for foreign laws. New York law and English law, the two most popular foreign laws, are different in some key respects in terms of how they instruct judges to interpret contracts (e.g., Burn 2014). We take some small steps in this direction by utilizing the World Bank's measures of rule of law quality. But, as scholars have observed, the current measures are at best rough estimates and more could be done (e.g., Ginsburg 2011).

[20] Gelpern and Gulati (2015) interviewed government debt managers around the globe about precisely the same question. The managers in the richer countries explained their local v. foreign debt issuance patterns in terms of signaling. In particular, managers want investors to perceive that there is no risk of restructuring. That, to them, translates into taking the position that there is no benefit to issuing bonds that have greater protections in the event of a restructuring. Therefore, they don't issue these bonds unless there is some specific reason to do so, in the form of either an idiosyncratic need on the part of some long-term holder or to maintain a small presence on an outside market or if they perceive there to be a temporary yield mismatch that they can take advantage of. Indeed, Gelpern and Gulati report that debt managers from rich nations regularly (and sometimes aggressively) state that they often–particularly in the case of demand-driven issuances--suffer a yield penalty for issuing debt under foreign parameters.

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